

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**  
(Not for submission under 37 CFR 1.99)

Application Number		10578946
Filing Date		2007-02-05
First Named Inventor	John SantaLucia	
Art Unit		1631
Examiner Name		ERIC S. DEJONG
Attorney Docket Number		DNASOFT-10963

IDS Filed on 04/28/2010 -- /E.D./ 12/18/2010

**U.S.PATENTS**

Examiner Initial*	Cite No	Patent Number	Kind Code <sup>1</sup>	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	6001983		1999-12-14	S. Benner	Whole Document
	2	5912340		1999-06-15	Epoch Pharmaceuticals, Inc	Whole Document

If you wish to add additional U.S. Patent citation information please click the Add button.

**U.S.PATENT APPLICATION PUBLICATIONS**

Examiner Initial*	Cite No	Publication Number	Kind Code <sup>1</sup>	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Published Application citation information please click the Add button.

**FOREIGN PATENT DOCUMENTS**

Examiner Initial*	Cite No	Foreign Document Number <sup>3</sup>	Country Code <sup>2</sup> <sup>4</sup>	Kind Code <sup>4</sup>	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T <sup>5</sup>
	1	WO 0194611			2001-12-13	WAYNE STATE UNIVERSITY	Whole Document	<input type="checkbox"/>

If you wish to add additional Foreign Patent Document citation information please click the Add button

**NON-PATENT LITERATURE DOCUMENTS**

/Eric Dejong/

12/18/2010

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**  
( Not for submission under 37 CFR 1.99)

Application Number	10578946
Filing Date	2007-02-05
First Named Inventor	John SantaLucia
Art Unit	1631
Examiner Name	ERIC S. DEJONG
Attorney Docket Number	DNASOFT-10963

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>5</sup>
	1	GESTELAND and ATKINS eds., "The RNA WORLD," 1993, Chapters starting on page 91, 137, 239, Cold Spring Harbor Labs Press, Cold Spring Harbor, NY.	<input type="checkbox"/>
	2	PROUTSKI, et al., "Secondary structure of the 3'-untranslated region of yellow fever virus: implications for virulence, attenuation and vaccine development," <i>J Gen Virol.</i> , 1997, 78:1543-1549.	<input type="checkbox"/>
	3	WARD, et al., "Changes in the NS gene of neurovirulent strains of influenza affect splicing," <i>Virus Genes</i> , 1995, 10:91-94.	<input type="checkbox"/>
	4	BIDOU, et al., Stahl, B Grima, et al., "In vivo HIV-1 frameshifting efficiency is directly related to the stability of the stem-loop stimulatory signal," <i>RNA</i> , 1997, 3:1153-1158.	<input type="checkbox"/>
	5	MILLER, et al., "Multiple Biological Roles Associated with the Rous Sarcoma Virus 59 Untranslated RNA U5-IR Stem and Loop," <i>J Virol.</i> , 1997, 71:7648.	<input type="checkbox"/>
	6	GIRELLI, et al., "Hereditary Hyperferritinemia-Cataract Syndrome Caused by a 29-Base Pair Deletion in the Iron Responsive Element of Ferritin L-Subunit Gene," <i>Blood</i> , 1997, 90:2084-2088.	<input type="checkbox"/>
	7	HOWE and ARES, "Intron self-complementarity enforces exon inclusion in a yeast pre-mRNA," <i>Proc. Natl. Acad. Sci.</i> , 1997, 94:12467-12472.	<input type="checkbox"/>
	8	VEYRUNE, et al., "c-fos mRNA instability determinants present within both the coding and the 3' non coding region link the degradation of this mRNA to its translationOncogene," 1995, 11:2127-34.	<input type="checkbox"/>
	9	SERANO and COHEN, "A small predicted stem-loop structure mediates oocyte localization of Drosophila K10 mRNA," <i>Develop.</i> , 1995, 121:3809-3818.	<input type="checkbox"/>
	10	HANKE, et al., "Repetitive AluElements form a Cruciform Structure that Regulates the Function of the Human CD8a T Cell-specific En hancer," <i>J. Mol. Biol.</i> , 1995, 246:63-73.	<input type="checkbox"/>

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**  
(Not for submission under 37 CFR 1.99)

Application Number	10578946
Filing Date	2007-02-05
First Named Inventor	John SantaLucia
Art Unit	1631
Examiner Name	ERIC S. DEJONG
Attorney Docket Number	DNASOFT-10963

11	LU and OLSON, "3DNA: a software package for the analysis, rebuilding and visualization of three-dimensional nucleic acid structures," <i>Nucleic Acids Res.</i> , 2003, 31:5108-21.	<input type="checkbox"/>
12	LAVERY and SKLENAR, "The Definition of Generalized Helicoidal Parameters and of Axis Curvature for Irregular Nucleic Acids," <i>J Biomol Struct. Dyn.</i> , 1988, 6:63-91.	<input type="checkbox"/>
13	LAVERY and SKLENAR, "Defining the structure of irregular nucleic acids: conventions and principles," <i>J Biomol Struct. Dyn.</i> , 1989, 6:655-67.	<input type="checkbox"/>
14	DICKERSON, R.E., "DNA bending: the prevalence of kinkiness and the virtues of normality," <i>Nuc Acid Res.</i> , 1998, 26:1906-26.	<input type="checkbox"/>
15	YANG, H., et al., "Tools for the automatic identification and classification of RNA base pairs," <i>Nuc Acid Res.</i> , 2003, 31:3450-60	<input type="checkbox"/>
16	HERSHKOVITZ, E., et al., "Automated identification of RNA conformational motifs: theory and application to the HM LSU 23S rRNA," <i>Nuc Acid Res.</i> , 2003, 31:6249-57.	<input type="checkbox"/>
17	KLOSTERMAN, P.S., et al., "SCOR: a Structural Classification of RNA databaseNuc," <i>Acid Res.</i> , 2002, 30:392-4.	<input type="checkbox"/>
18	LEONTIS, N.B., et al., "Motif prediction in ribosomal RNAs Lessons and prospects for automated motif prediction in homologous RNA molecules," <i>Biochimie</i> , 2002, 84:961-973.	<input type="checkbox"/>
19	GAUTHERET, D. and LAMBERT, A, "Direct RNA Motif Definition and Identification from Multiple Sequence Alignments using Secondary Structure Profiles," <i>J Mol Biol.</i> , 2001, 313:1003-11.	<input type="checkbox"/>
20	HUBBARD, J.M. and HEARST, J.E., "Predicting the three-dimensional folding of transfer RNA with a computer modeling protocol," <i>Biochem.</i> , 1991, 30:5458-5465.	<input type="checkbox"/>
21	MICHEL, F. and WESTHOF, E., "Modelling of the three-dimensional architecture of group I catalytic introns based on comparative sequence analysis," <i>J Mol Biol.</i> , 1990, 216:585-610.	<input type="checkbox"/>

EFS Web 2.1.17 ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /E.D./

/Eric DeJong/

12/18/2010

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**  
( Not for submission under 37 CFR 1.99)

Application Number	10578946
Filing Date	2007-02-05
First Named Inventor	John SantaLucia
Art Unit	1631
Examiner Name	ERIC S. DEJONG
Attorney Docket Number	DNASOFT-10963

22	MASSIRE, C. and WESTHOFF, E., "MANIP: an interactive tool for modelling RNA," <i>J Mol Graphics Model</i> , 1999, 16:197-205.	<input type="checkbox"/>
23	TSAI, H.Y., et al., "Molecular Modeling of the Three-dimensional Structure of the Bacterial RNase P Holoenzyme," <i>J Mol Biol</i> , 2003, 325:661-675.	<input type="checkbox"/>
24	MASSIRE, C., et al., "Derivation of the Three-dimensional Architecture of Bacterial Ribonuclease P RNAs from Comparative Sequence Analysis," <i>J Mol Biol</i> , 1998, 279:773-93.	<input type="checkbox"/>
25	MAJOR, F., et al., "The combination of symbolic and numerical computation for three-dimensional modeling of RNA," <i>Science</i> , 1991, 253:1255-60.	<input type="checkbox"/>
26	GAUTHERET, D., et al., "Modeling the Three-dimensional Structure of RNA Using Discrete Nucleotide Conformational Sets," <i>J Mol Biol</i> , 1993, 229:1049-1064.	<input type="checkbox"/>
27	MAIER, A., et al., "Force field based conformational analysis of RNA structural motifs: GNRA tetraloops and their pyrimidine relatives," <i>Eur Biophys J Biophys Lett</i> , 1999, 28:564-73.	<input type="checkbox"/>
28	MACKE, T.J. and CASE, D.A., "Modeling Unusual Nucleic Acid Structures," <i>ACS Symp Ser</i> , 1998, 682:379-93.	<input type="checkbox"/>
29	MUELLER, F. and BRIMACOMBE, R., "A new model for the three-dimensional folding of <i>Escherichia coli</i> 16 S ribosomal RNA. I. fitting the RNA to a 3D electron microscopic map at 20 Å," <i>J Mol Biol</i> , 1997, 271:524-544.	<input type="checkbox"/>
30	MUELLER, F. and BRIMACOMBE, R., "A new model for the three-dimensional folding of <i>Escherichia coli</i> 16 S ribosomal RNA. II. The RNA-protein interaction data," <i>J Mol Biol</i> , 1997, 271:545-565.	<input type="checkbox"/>
31	MUELLER, F., et al., "The 3D Arrangement of the 23 S and 5 S rRNA in the <i>Escherichia coli</i> 50 S Ribosomal Subunit Based on a Cryo-electron Microscopic Reconstruction at 7.5 Å Resolution," <i>J Mol Biol</i> , 2000, 298:35-59.	<input type="checkbox"/>
32	TUNG, C. S., et al., "The 3D Arrangement of the 23 S and 5 S rRNA in the <i>Escherichia coli</i> 50 S Ribosomal Subunit Based on a Cryo-electron Microscopic Reconstruction at 7.5 Å Resolution," <i>Nature Struct Biol</i> , 2002, 9:750-5.	<input type="checkbox"/>

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**  
( Not for submission under 37 CFR 1.99)

Application Number	10578946
Filing Date	2007-02-05
First Named Inventor	John SantaLucia
Art Unit	1631
Examiner Name	ERIC S. DEJONG
Attorney Docket Number	DNASOFT-10963

33	TUNG, C.S., "A geometrical approach in folding a pseudoknot motif within the <i>E. coli</i> 16S-RNA," <i>J Biomol Struct Dyn</i> , 1996, 14:153-61.	<input type="checkbox"/>
34	NIELSEN P.E., et al., "Sequence-selective recognition of DNA by strand displacement with a thymine-substituted polyamide," <i>Science</i> 1991, 254:1497-1500.	<input type="checkbox"/>
35	PETERSEN M., et al., "Structural Characterization of LNA and -L-LNA Hybridized to RNA," <i>Nucleosides Nucleotides &amp; Nuc Acids</i> , 2003, 22:1691-1693.	<input type="checkbox"/>
36	CHAPUT JC, SZOSTAK JW, "TNA Synthesis by DNA Polymerases," <i>J Am Chem Soc</i> , 2003, 125:9274-9275.	<input type="checkbox"/>
37	SCHUBERT S, et al, "RNA cleaving '10-23' DNAzymes with enhanced stability and activity," <i>Nuc Acids Res</i> , 2003, 30:5982-5992.	<input type="checkbox"/>
38	VICKERS TA, et al., "Fully modified 2' MOE oligonucleotides redirect polyadenylation," <i>Nuc Acids Res</i> , 2001, 29:1293-1299.	<input type="checkbox"/>
39	SHIMIZU M., et al., "Oligo(2'-O-methyl)nbonucleotides Effective probes for duplex DNA," <i>FEBS Ltrs</i> , 1992, 302:155-158.	<input type="checkbox"/>
40	ESCHENMOSER A, 1993, "Hexose Nuc-Acids," <i>Pure Appl Chem</i> , 65:1179-1188.	<input type="checkbox"/>
41	ROZENSKI J., et al., "The RNA modification database: 1999 Update," 1999, <i>Nuc Acids Res</i> , 27:196-197.	<input type="checkbox"/>
42	SCHWEITZER, B.A., KOOL, E.T., "Aromatic Nonpolar Nucleosides as Hydrophobic Isosteres of Pyrimidines and Purine Nucleosides," <i>J Org Chem</i> , 1994, 59:7238-7242.	<input type="checkbox"/>
43	SCHWEITZER, B.A., KOOL, E.T., "Hydrophobic, Non-Hydrogen-Bonding Bases and Base-Pairs in DNA," <i>J Am Chem Soc</i> , 1995, 117:1863-1872.	<input type="checkbox"/>

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**  
( Not for submission under 37 CFR 1.99)

Application Number	10578946
Filing Date	2007-02-05
First Named Inventor	John SantaLucia
Art Unit	1631
Examiner Name	ERIC S. DEJONG
Attorney Docket Number	DNASOFT-10963

44	Kong, P., et al., "Synthesis and duplex stability of oligonucleotides containing cytosine-thymine analogues," Nuc Acids Res, 1989, 17:10373-10383.	<input type="checkbox"/>
45	Kong, P., et al., "Synthesis of oligodeoxyribonucleotides containing degenerate bases and their use as primers in the polymerase chain reaction," Nuc Acids Res, 1992, 20:5149-5152.	<input type="checkbox"/>
46	PEYRET, N., et al., "Nearest-Neighbor Thermodynamics and NMR of DNA Sequences with Internal A-A, C-C, G-G, and T-T Mismatches", Biochem, 1999, 38:3468-3477.	<input type="checkbox"/>
47	GUTELL, R.R., "Collection of small subunit (16S- and 16S-like) ribosomal RNA structures: 1994," Nuc Acids Res, 1994, 22:3502-7.	<input type="checkbox"/>
48	SEEMAN, N.C., "DNA Nanotechnology: Novel DNA Constructions," Annu Rev Biophys Biomol Struct, 1998, 27:225-248	<input type="checkbox"/>
49	TURBERFIELD, A.J., et al., "DNA Fuel for Free-Running Nanomachines," Physical Rev Ltrs, 2003, 90:118102-1-118102-4.	<input type="checkbox"/>
50	BENENSON, Y., et al., "DNA molecule provides a computing machine with both data and fuel," Proc Natl Acad Sci, 2003, 100:2191-6.	<input type="checkbox"/>

If you wish to add additional non-patent literature document citation information please click the Add button

**EXAMINER SIGNATURE**

Examiner Signature	Date Considered
--------------------	-----------------

**\*EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> See Kind Codes of USPTO Patent Documents at [www.USPTO.GOV](http://www.USPTO.GOV) or MPEP 901.04. <sup>2</sup> Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>3</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>4</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>5</sup> Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /E.D./

/Eric DeJong/

12/18/2010